

REMARKS

In response to the Office Action mailed May 7, 2002, Applicants have cancelled claim 6, and amended claims 1, 10-12, 24 and 25. Claims 1-5, 7-13, 16-18 and 23-28 are presented for examination.

Claims 1-13, 16-18 and 23-28 were rejected under 35 U.S.C. §112, second paragraph. Applicants have amended the claims to obviate this rejection, and so the rejection should be withdrawn.

Claims 1, 3-5, 7, 8, 10-13, 16-18 and 24-27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Woolf. Applicants have limited these claims to include the limitation from previously pending claim 6 (i.e., to require the superconducting ceramic to be in the form of a superconducting tape), which was not rejected in view of Woolf. Accordingly, Applicants request reconsideration and withdrawal of the rejection of claims 1, 3-5, 7, 8, 10-13, 16-18 and 24-27 under 35 U.S.C. §103(a) as being unpatentable over Woolf.

Claims 1, 12, 24 and 25 were rejected under 35 U.S.C. §102(b) as being anticipated by Sato '908. These claims require a sealing structure configured to form a seal to prevent a cryogenic fluid from infiltrating into a ceramic superconductor through the outer surface of the ceramic superconductor.

Sato '908 discloses an article that includes superconductor wires 3 disposed between FRP pipes 9 and 12 to form a cooling space 11 through which a cryogenic fluid flows. (Sato '908 col. 3, lines 33-48 and Fig. 3). Thus, rather than being configured to prevent cryogenic fluid from infiltrating into a ceramic superconductor through the outer surface of the ceramic superconductor, Sato's pipe 12 is configured to keep cryogenic fluid in contact with superconductor wires 3. As a result, Sato '908 does not disclose the sealing structure required by claims 1, 12, 24 and 25. Accordingly, Applicants request reconsideration and withdrawal of the rejection of these claims under 35 U.S.C. §102(b) as being anticipated by Sato '908.

Claims 1, 2, 6-13, 15, 23-25 and 28 were rejected under 35 U.S.C. §102(b) or §103(a) in view of Sato '281. These claims require a sealing structure configured to form a seal to prevent

a cryogenic fluid from infiltrating into a ceramic superconductor through the outer surface of the ceramic superconductor.

Sato '281 discloses an article including oxide superconductors 6 between an FRP pipe 5 and Teflon tape 8. (Sato '281 col. 4, lines 40-55 and Fig. 2). As would be understood by those skilled in the art, Sato's article is designed so that the cryogenic fluid flows through the hole formed by the interior surface of FRP pipe 5. Accordingly, Sato discloses that Teflon tape 8 is simply used to bind superconductors 6 to pipe 5. (See, e.g., id. at Abstract and col. 4, lines 44-46). Hence, Teflon tape 8 is not configured to prevent cryogenic fluid from infiltrating into a ceramic superconductor, as required by claims 1, 2, 6-13, 15, 23-25 and 28.

Moreover, there is no suggestion to modify Sato's article to provide the articles covered by claims 1, 2, 6-13, 15, 23-25 and 28. Rather, Sato says that his article provides a number of advantages. (Id. col. 1, line 37-col. 3, line 44). Thus, after reading Sato '281, one skilled in the art would not be motivated to modify Sato's article to provide the article covered by claims 1, 2, 6-13, 15, 23-25 and 28.

In view of the foregoing, Applicants request reconsideration and withdrawal of the rejection of claims 1, 2, 6-13, 15, 23-25 and 28 under 35 U.S.C. §102(b) and §103(a) in view of Sato '281.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant : David W. Buczek et al.
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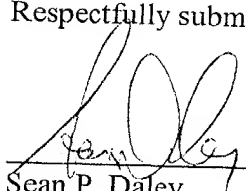
Applicants ask that all claims be allowed. Please apply any charges or credits to Deposit Account No. 06-1050.

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Fish & Richardson P.C.
225 Franklin Street
Boston, Massachusetts 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

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Respectfully submitted,


Sean P. Daley
Reg. No. 40,978



Version with markings to show changes made

In the claims:

Claim 6 was cancelled.

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The claims were amended as follows.

- 1. (Twice Amended) A superconducting article, comprising:
a ceramic superconductor in the form of a superconducting tape, the ceramic superconductor having a length and an outer surface along its length; and
a sealing structure comprising a cured polymer layer encircling the outer surface of the ceramic superconductor, the cured polymer layer being configured to form a seal to prevent a cryogenic fluid at a pressure of about one atmosphere from infiltrating into the ceramic superconductor through the outer surface of the ceramic superconductor,
wherein [the sealing structure comprises a cured polymer layer encircling the outer surface of the ceramic superconductor, and] the superconducting article is in the form of a cable.
10. (Twice Amended) The article of claim 1, wherein the [sealing structure is configured to prevent] seal formed by the cured polymer layer prevents a cryogenic fluid at a pressure of at least about two bar from infiltrating into the ceramic superconductor through the outer surface of the ceramic superconductor.
11. (Twice Amended) The article of claim 10, wherein the [sealing structure is configured to prevent] seal formed by the cured polymer layer prevents a cryogenic fluid at a pressure of at least about 10 atmospheres from infiltrating into the ceramic superconductor through the outer surface of the ceramic superconductor.
12. (Twice Amended) A superconducting article, comprising:

a ceramic superconductor in the form of a superconducting tape, the ceramic superconductor having a length and an outer surface along its length; and

a sealing structure [configured to permit] comprising a cured polymer layer that is applied to the outer surface of the ceramic superconductor to form a seal that permits the article to withstand thermal cycling when exposed to a fluid cryogen at a pressure of at least about one atmosphere without degrading the current carrying capability of the ceramic superconductor by more than 10%,

wherein [the sealing structure comprises a cured polymer layer encircling the outer surface of the ceramic superconductor, and] the superconducting article is in the form of a cable.

24. (Once Amended) The article of claim 12, wherein the [sealing structure is configured to prevent] seal formed by the cured polymer prevents a cryogenic fluid at a pressure of at least about two bar from infiltrating into the ceramic superconductor through the outer surface of the ceramic superconductor.

25. (Once Amended) The article of claim 12, wherein the [seal structure is configured to prevent] seal formed by the cured polymer prevents a cryogenic fluid at a pressure of at least about 10 atmospheres from infiltrating into the ceramic superconductor through the outer surface of the ceramic superconductor.--